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=> FSE JP08162450/PN

SEA JP08162450/PN

L13 1 JP08162450/PN

FSE

*** ITERATION 1 ***

SET SMARTSELECT ON
SET COMMAND COMPLETED

SET HIGHLIGHTING OFF
SET COMMAND COMPLETED

SEL L13 1- PN,APPS

L14 SEL L13 1- PN APPS : 13 TERMS

SEA L14

L15 1 L14

DEL L15- Y

FSORT L13

L15 1 FSO L13

0 Multi-record Families

1 Individual Record

Answer 1

0 Non-patent Records

SET SMARTSELECT OFF
SET COMMAND COMPLETED

SET HIGHLIGHTING DEF
SET COMMAND COMPLETED

=> D BIB ABS 1-

YOU HAVE REQUESTED DATA FROM 1 ANSWERS - CONTINUE? Y/(N) :y

L15 ANSWER 1 OF 1 WPIDS (C) 2002 THOMSON DERWENT

AN 1996-001294 [01] WPIDS

DNN N1996-001098 DNC C1996-000494

TI Gel method for mfr. of porous dielectric layer for semiconductor device -
uses ambient or lower pressures without loss of quality and reduces
capacitance between adjacent conductors.

DC L03 U11

IN CHO, C; GNADE, B E; SMITH, D M

PA (TEXI) TEXAS INSTR INC

CYC 7

PI EP 684642 A1 19951129 (199601)* EN 18p

R: DE FR GB IT NL

US 5470802 A 19951128 (199602) 13p

JP 08162450 A 19960621 (199635) 13p <--

US 5789819 A 19980804 (199838)

US 5804508 A 19980908 (199843)

EP 684642 B1 20011219 (200206) EN

R: DE FR GB IT NL

DE 69524665 E 20020131 (200216)

ADT EP 684642 A1 EP 1995-107702 19950519; US 5470802 A US 1994-247195
19940520; JP 08162450 A JP 1995-120216 19950518; US 5789819 A Div ex US
1994-247195 19940520, US 1995-483029 19950607; US 5804508 A Cont of US
1994-247195 19940520, Cont of US 1995-473701 19950607, US 1996-735758
19961023; EP 684642 B1 EP 1995-107702 19950519; DE 69524665 E DE

1995-624665 19950519, EP 1995-107702 19950519
FDT US 5789819 A Div ex US 5470802; US 5804508 A Cont of US 5470802; DE
69524665 E Based on EP 684642
PRAI US 1994-247195 19940520; US 1995-483029 19950607; US 1995-473701
19950607; US 1996-735758 19961023
AN 1996-001294 [01] WPIDS
AB EP 684642 A UPAB: 19960108

A method of forming a porous dielectric on a semiconductor device comprises providing two horizontally adjacent conductors on a substrate, coating the substrate and filling the gap between conductors with a soln. capable of forming a wet gel, gelling to form an open-pored wet gel, and drying to form an undensified porous dielectric layer.

Pore dia. is less than 80 nm and the electric constant is less than 3.0; capacitive coupling is much less than with solid silica. The wet gel is solvent-washed to remove water and reacted with a surface-modification agent to replace at least 15% of reactive gps. on pore surfaces with stable gps. to prevent unwanted condensations and control densification.

Reactive gps. include hydroxyl, stable gps. are organic radicals, and drying is at subcritical pressures. Unreacted modification agent is removed from the wet gel, gelling is by hydrolysing and condensing metal alkoxides or from particulated or colloidal metal alkoxides, or from organic precursors. The wet gel is aged at below the b.pt. of the solvent the dielectric is mainly silica and has pore dias. of 2-25nm.

USE - For reducing capacitive coupling between conductors in high density ICs for computers, televisions, etc..

ADVANTAGE - The method avoids the use of supercritical pressure in drying the gel without loss of quality in respect of pore size, porosity, and shrinkage,
Dwg.0/8

ABEQ US 5470802 A UPAB: 19960115

A method of forming a porous dielectric on a semiconductor device comprising: (a) providing a first conductor and a horizontally adjacent second conductor, formed on a substrate wherein a gap is formed between said first and said second conductors; (b) providing a solution capable of forming a wet gel; (c) coating said substrate with said solution such that the gap between said first and second conductors is filled substantially with said solution; (d) gelling said solution to form a wet gel on said substrate, said wet gel containing pores arranged in an open-pored structure; and (e) drying said wet gel to form a substantially undensified porous dielectric layer, said porous dielectric having a dielectric constant less than 3.0 and a pore diameter of less than 80 nm, whereby the capacitive coupling between conductors on the same level is substantially reduced compared to a solid silicon dioxide dielectric.

Dwg.0/8

=> FSE JP10070121/PN

SEA JP10070121/PN

L16 1 JP10070121/PN

FSE

*** ITERATION 1 ***

SET SMARTSELECT ON
SET COMMAND COMPLETED

SET HIGHLIGHTING OFF
SET COMMAND COMPLETED

SEL L16 1- PN,APPS

L17 SEL L16 1- PN APPS : 52 TERMS

SEA L17
L18 5 L17

*** ITERATION 2 ***

SEL L18 1- PN,APPS
L17 SEL L16 1- PN APPS : 67 TERMS

SEA L17
L18 5 L17

FSORT L18
L19 5 FSO L18

1 Multi-record Family	Answers 1-5
0 Individual Records	
0 Non-patent Records	

SET SMARTSELECT OFF
SET COMMAND COMPLETED

SET HIGHLIGHTING DEF
SET COMMAND COMPLETED

=> D BIB ABS 1-

YOU HAVE REQUESTED DATA FROM 5 ANSWERS - CONTINUE? Y/(N) :y

L19 ANSWER 1 OF 5 WPIDS (C) 2002 THOMSON DERWENT FAMILY 1
AN 2002-328094 [36] WPIDS
CR 1997-283054 [26] ; 1998-520099 [44]
DNN N2002-257364 DNC C2002-094731
TI Formation of thin film aerogel on semiconductor substrate involves depositing aerogel precursor sol on substrate, allowing the deposited sol to create gel, and forming dry aerogel.
DC E17 L03 U11 U14
IN ACKERMAN, W C; SMITH, D M; STOLTZ, R A
PA (ACKE-I) ACKERMAN W C; (SMIT-I) SMITH D M; (STOL-I) STOLTZ R A
CYC 1
PI US 2001041459 A1 20011115 (200236)* 21p
ADT US 2001041459 A1 Cont of US 1996-748926 19961114, Cont of US 1998-115854 19980715, US 2001-757073 20010108
FDT US 2001041459 A1 Cont of US 5807607, Cont of US 6171645
PRAI US 1996-748926 19961114; US 1998-115854 19980715; US 2001-757073 20010108
AN 2002-328094 [36] WPIDS
CR 1997-283054 [26] ; 1998-520099 [44]
AB US2001041459 A UPAB: 20020610
NOVELTY - A thin film aerogel is formed on a semiconductor substrate by providing a semiconductor substrate having a microelectronic circuit, depositing an aerogel precursor sol on the substrate, allowing the deposited sol to create a gel, and forming a dry aerogel.
DETAILED DESCRIPTION - Formation of a thin film aerogel on a semiconductor substrate comprises:
(1) providing a semiconductor substrate having a microelectronic circuit;
(2) depositing an aerogel precursor sol on the substrate;
(3) allowing the deposited sol to create a gel; and,
(4) forming a dry aerogel by removing the pore fluid.
The precursor sol comprises a metal-based aerogel precursor reactant and a first solvent comprising a first polyol. The molar ratio of the first solvent molecules to the metal atoms in the reactant is at least 1:16. The gel comprises a porous solid and the pore fluid.
USE - For forming a thin film aerogel on a semiconductor substrate.
ADVANTAGE - The method is simple, and allows both bulk and thin film aerogels to be made without supercritical drying, freeze drying, or a surface modification step before drying. It allows production of nanoporous dielectrics at room temperature and atmospheric pressure, without a separate modification step. It also eliminates adding a surface modification agent before the forming step.
Dwg.0/13

L19 ANSWER 2 OF 5 WPIDS (C) 2002 THOMSON DERWENT FAMILY 1
AN 1999-059248 [05] WPIDS
CR 1996-041860 [05] ; 1997-283054 [26]
DNN N1999-044068 DNC C1999-017428
TI Semiconductor device with porous dielectric for electronic appliance - has porous dielectric layer with porosity of twenty per cent and pore diameter in range of two to eighty nm.
DC L03 U11
IN ACKERMAN, W C; CHANGMING, J; CHO, C; GNADE, B E; JOHNSTON, G C; SMITH, D

PA (TEXI) TEXAS INSTR INC

CYC 1

PI US 5847443 A 19981208 (199905)* 11p

ADT US 5847443 A CIP of US 1994-263572 19940623, US 1996-746689 19961114

FDT US 5847443 A CIP of US 5504042

PRAI US 1996-746689 19961114; US 1994-263572 19940623

AN 1999-059248 [05] WPIDS

CR 1996-041860 [05]; 1997-283054 [26]

AB US 5847443 A UPAB: 20020128

The device has a patterned conductor layer (24) formed on an insulating layer (22). A porous dielectric layer (28) consisting of silica is formed between a pair of semiconductors so that the dielectric layer has a porosity of 20% with the diameter of the pore ranging between 2-80 nm.

The pore surface has a hydroxyl compound with concentration less than 1.5 groups per square nm of pore surface area. A phenyl group compound with a concentration of less than 0.8 groups per square nm is bonded to pore surfaces of the porous dielectric layer.

USE - For computer, TV.

ADVANTAGE - Provides low dielectric constant to reduce unwanted capacitive coupling on semiconductor devices.

Dwg. 1D/4

L19 ANSWER 3 OF 5 WPIDS (C) 2002 THOMSON DERWENT FAMILY 1

AN 1998-520099 [44] WPIDS

CR 1997-283054 [26]; 2002-328094 [01]

DNN N1998-406212 DNC C1998-156096

TI Formation of thin aerogel on semiconductor substrates, eliminating the need for supercritical drying or surface modification steps to prevent pore collapse - by simply depositing a sol containing a metal containing aerogel precursor and a solvent followed by drying, useful for integrated circuits for computers and television.

DC E11 L03 P42 U11

IN ACKERMAN, W C; SMITH, D M; STOLTZ, R A

PA (TEXI) TEXAS INSTR INC

CYC 1

PI US 5807607 A 19980915 (199844)* 22p

ADT US 5807607 A US 1996-748926 19961114

PRAI US 1996-748926 19961114

AN 1998-520099 [44] WPIDS

CR 1997-283054 [26]; 2002-328094 [01]

AB US 5807607 A UPAB: 20020610

A method for forming a thin film aerogel (especially thin film, nano-porous dielectrics) on a semiconductor substrate, comprises: (a) providing a semiconductor substrate, optionally comprising a microelectronic circuit; (b) depositing on the substrate an aerogel precursor sol comprising (i) a metal atom-containing aerogel precursor reactant; and (ii) a first solvent in which the molar ratio of first solvent molecules to metal atoms in (i) is at least 1:16; (c) allowing the deposited sol to create a gel comprising a porous solid and a pore fluid; and (d) forming a dry aerogel by removing the pore fluid.

USE - The dry, nano-porous dielectrics and thermal insulators (claimed) on semiconductor substrates are useful in integrated circuit manufacture, e.g. for use in computers and televisions. The process is useful in the manufacture of integrated circuits which can accomplish more in less time in a smaller package while consuming less power, where increased capacitive coupling (crosstalk) can limit achievable speed and degrade the noise margin used to ensure proper device operation. Devices which were previously uneconomical to produce can now be made, e.g. low dielectric constant thin films (particularly on semiconductor substrates) miniaturised chemical sensors, thermal isolation structures and thermal isolation layers (including thermal isolation structures for infrared detectors). Substrates include silicon, germanium, and gallium arsenide used to form, e.g. active devices, lower level wiring and insulation

layers.

ADVANTAGE - Dry, nano-porous dielectrics which do not collapse on formation, are obtained (claimed). Intermediate steps using surface modification (claimed) or supercritical drying to prevent pore collapse, as in prior art, are not required for the production of both bulk and thin film aerogels. Nano-porous dielectrics can be formed at room temperature and atmospheric pressure. Thus the process is more simple and cost effective than prior art methods. Resulting porosities can be adjusted to suit the end application.

Dwg.9/12

L19 ANSWER 4 OF 5 WPIDS (C) 2002 THOMSON DERWENT FAMILY 1
AN 1997-283054 [26] WPIDS
CR 1996-041860 [05]; 1998-520099 [44]; 1999-059248 [05]; 2002-328094 [01]
DNN N1997-234375 DNC C1997-091119
TI Low volatility nanoporous aerogel precursor sol containing polyol as solvent - eliminates need for supercritical drying in the manufacture of bulk and thin film aerogels.
DC E36 L02 L03 P42 U11
IN ACKERMAN, W C; GNADE, B E; JENG, S; JOHNSTON, G P; MASKARA, A; RAMOS, T; SMITH, D M; STOLTZ, R A; MASAKARA, A; CHANGMING, J; CHO, C; JOHNSTON, G C
PA (TEXI) TEXAS INSTR INC
CYC 9
PI EP 775669 A2 19970528 (199726)* EN 36p
R: DE FR GB IT NL
EP 775669 A3 19970813 (199745)
JP 10070121 A 19980310 (199820) 31p
US 5736425 A 19980407 (199821) 16p
JP 10087316 A 19980407 (199824) 29p
KR 98012472 A 19980430 (199917)
KR 98012540 A 19980430 (199917)
US 5955140 A 19990921 (199945)
US 6037277 A 20000314 (200020)
TW 364155 A 19990711 (200030)
US 6063714 A 20000516 (200031)
US 6130152 A 20001010 (200052)
US 6140252 A 20001031 (200057)
US 6159295 A 20001212 (200067)
US 6171645 B1 20010109 (200104)
EP 775669 B1 20010502 (200125) EN
R: DE FR GB IT NL
DE 69612653 E 20010607 (200140)
US 6319852 B1 20011120 (200174)
US 6380105 B1 20020430 (200235) #
ADT EP 775669 A2 EP 1996-118275 19961114; EP 775669 A3 EP 1996-118275 19961114; JP 10070121 A JP 1996-342342 19961118; US 5736425 A Provisional US 1995-6852P 19951116, Provisional US 1995-6853P 19951116, Provisional U 1996-12764P 19960304, US 1996-748925 19961114; JP 10087316 A JP 1996-342341 19961118; KR 98012472 A KR 1996-54713 19961116; KR 98012540 A KR 1996-54714 19961116; US 5955140 A Provisional US 1995-6852P 19951116, Provisional US 1995-6853P 19951116, Provisional US 1995-6861P 19951116, Provisional US 1996-10511P 19960124, Provisional US 1996-12763P 19960304, Provisional US 1996-12764P 19960304, Provisional US 1996-12765P 19960304, Provisional US 1996-12799P 19960304, Provisional US 1996-12800P 19960304, Provisional US 1996-14005P 19960325, Provisional US 1996-14008P 19960325, Provisional US 1996-14009P 19960325, Provisional US 1996-14146P 19960325, Provisional US 1996-22842P 19960731, US 1996-746680 19961114; US 6037277 Provisional US 1995-6852P 19951116, Provisional US 1995-6853P 19951116, Provisional US 1996-12764P 19960304, Provisional US 1996-12800P 19960304, Provisional US 1996-14005P 19960325, Provisional US 1996-22842P 19960731, US 1996-746697 19961114; TW 364155 A TW 1997-102461 19970303; US 6063714 Provisional US 1996-10511P 19960124, US 1996-749186 19961114; US 6130152 Provisional US 1995-6853P 19951116, US 1996-746679 19961114; US 6140252 A

CIP of US 1994-263572 19940623, Provisional US 1996-12764P 19960304, Div ex US 1996-746689 19961114, US 1998-72905 19980505; US 6159295 A
Provisional US 1995-6852P 19951116, Provisional US 1995-6853P 19951116,
Provisional US 1996-12764P 19960304, Provisional US 1996-12800P 19960304,
Provisional US 1996-14005P 19960325, Provisional US 1996-22842P 19960731,
Div ex US 1996-746697 19961114, US 1999-296911 19990422; US 6171645 B1
Provisional US 1995-6852P 19951116, Provisional US 1995-6853P 19951116,
Provisional US 1996-12764P 19960304, Provisional US 1996-12800P 19960304,
Provisional US 1996-14005P 19960325, Cont of US 1996-748926 19961114, US
1998-115854 19980715; EP 775669 B1 EP 1996-118275 19961114; DE 69612653 E
DE 1996-612653 19961114, EP 1996-118275 19961114; US 6319852 B1
Provisional US 1995-6861P 19951116, Cont of US 1996-746688 19961114, US
2000-488185 20000120; US 6380105 B1 Div ex US 1996-746680 19961114, US
1999-324370 19990602

FDT US 6140252 A CIP of US 5504042, Div ex US 5847443; US 6171645 B1 Cont of
US 5807607; DE 69612653 E Based on EP 775669; US 6380105 B1 Div ex US
5955140

PRAI US 1996-22842P 19960731; US 1995-6852P 19951116; US 1995-6853P
19951116; US 1995-6861P 19951116; US 1996-10511P 19960124; US
1996-12763P 19960304; US 1996-12764P 19960304; US 1996-12765P
19960304; US 1996-12799P 19960304; US 1996-12800P 19960304; US
1996-14005P 19960325; US 1996-14008P 19960325; US 1996-14009P
19960325; US 1996-14146P 19960325; US 1996-748925 19961114; US
1996-746680 19961114; US 1996-746697 19961114; US 1996-749186
19961114; US 1996-746679 19961114; US 1994-263572 19940623; US
1996-746689 19961114; US 1998-72905 19980505; US 1999-296911
19990422; US 1996-748926 19961114; US 1998-115854 19980715; US
1996-746688 19961114; US 2000-488185 20000120; US 1999-324370
19990602

AN 1997-283054 [26] WPIDS

CR 1996-041860 [05]; 1998-520099 [44]; 1999-059248 [05]; 2002-328094 [01]

AB EP 775669 A UPAB: 20020610

A metal-based nanoporous aerogel precursor sol comprises an aerogel precursor and a polyol solvent, the mole ratio of solvent molecules to metal atoms being at least 1:16. Also claimed are non-supercritical methods for forming nanoporous aerogels e.g. a thin film dielectric on a semiconductor substrate.

USE - In the manufacture of bulk and thin film aerogels. Bulk gel uses include molecular sieves, thermal insulation, catalyst supports, adsorbents, acoustic insulation and optiseperation membranes. Thin film gel uses include low dielectric constant films for semiconductors, miniaturised chemical sensors, thermal isolation structures e.g. for infrared detectors, thermal isolation layers and optical, protective, porous and antireflective coatings.

ADVANTAGE - Supercritical drying and the need of surface modification before drying are eliminated, the gelled film being either aged and dried without atmospheric controls or rapidly aged at elevated temperature and dried with only passive atmospheric controls e.g. limiting the volume of the aging chamber. Film thickness and aerogel density can be controlled easily and independently.

Dwg.0/19

L19 ANSWER 5 OF 5 WPIDS (C) 2002 THOMSON DERWENT FAMILY 1

AN 1996-041860 [05] WPIDS

CR 1997-283054 [26]; 1999-059248 [05]

DNN N1996-035104 DNC C1996-014195

TI Improving the properties of an uncapped porous dielectric layer - on a semiconductor device by controlled atmos. heat treatment which removes hydroxyl gps. from the pore surfaces.

DC L03 U11

IN CHO, C; GNADE, B E; SMITH, D M

PA (TEXI) TEXAS INSTR INC; (CHOC-I) CHO C; (GNAD-I) GNADE B E; (SMIT-I) SMIT
D M

CYC 7
PI EP 689235 A1 19951227 (199605) * EN 11p
R: DE FR GB IT NL
JP 08046047 A 19960216 (199617) 8p
US 5504042 A 19960402 (199619) 8p
US 5523615 A 19960604 (199628) 8p
US 5723368 A 19980303 (199816) 8p
EP 689235 B1 20011219 (200206) EN
R: DE FR GB IT NL
DE 69524675 E 20020131 (200216)

ADT EP 689235 A1 EP 1995-109826 19950623; JP 08046047 A JP 1995-157881
19950623; US 5504042 A US 1994-263572 19940623; US 5523615 A Div ex US
1994-263572 19940623, US 1995-474273 19950607; US 5723368 A Cont of US
1994-263572 19940623, US 1995-472683 19950607; EP 689235 B1 EP 1995-10982
19950623; DE 69524675 E DE 1995-624675 19950623, EP 1995-109826 19950623

FDT US 5723368 A Cont of US 5504042; DE 69524675 E Based on EP 689235
PRAI US 1994-263572 19940623; US 1995-474273 19950607; US 1995-472683
19950607

AN 1996-041860 [05] WPIDS
CR 1997-283054 [26]; 1999-059248 [05]
AB EP 689235 A UPAB: 20020308
Uncapped porous dielectric layer formed on a substrate and having an
average pore size of 2-80 nm is modified by heating at 100-490 deg. C in
controlled atmos., such that at least 70% of hydroxyl gps. initially
present on the pore surfaces are removed, resulting in improved dielectri
properties.

Also claimed is a semiconductor device comprising: (I) a layer of
patterned conductors formed on a substrate; and (II) a porous dielectric
layer, pref. SiO₂, formed between the patterned conductors, having a
porosity of at least 20%, average pore dia. 2-80 nm and OH concn. below
1.5 pref. below 0.5 OH gps./nm² of pore surface area.

The controlled atmos. is an H₂-contg. O₂-free atmos, pref. 10 wt.% H
(sic), and 90 wt.% N₂. (sic). The atmos. may alternatively, or in addn.,
contain an F cpd., pref. NH₄F, HF or F₂. Two different atmos. may be
applied sequentially during heating. Heating temp. is 300-450 deg. C and
the resulting linear shrinkage is 5% or less.

Hal gps., pref. F, are bonded to the pore surfaces of the porous
dielectric in a concn. of above 0.8 groups/nm². A solid cap layer is adde
over the porous layer.

USE - Fabrication of dielectrics on semiconductor devices.
ADVANTAGE - The dielectric layer has improved dielectric constant,
resistivity, breakdown voltage and/or loss factor.

Dwg.0/2

ABEQ US 5504042 A UPAB: 19960510
A method of modifying a porous dielectric on a semiconductor device
comprising: (a) providing a substrate containing an uncapped porous
dielectric layer, said porous dielectric layer having an average pore
diameter between 2 and 80 nm; and (b) heating said substrate to one or
more temperatures between 100 and 490 degrees C. in a controlled
atmosphere such that at least 70% of hydroxyl groups initially present on
the pore surfaces of said porous dielectric are removed from said porous
dielectric, whereby one or more dielectric properties of the porous
dielectric are improved.
Dwg.1A/2

ABEQ US 5523615 A UPAB: 19960719
A semiconductor device which comprises: (a) a layer of patterned
conductors formed on a substrate; (b) a porous dielectric layer disposed
at least partially between at least one pair of the patterned conductors,
the porous dielectric layer having a porosity of at least 20%, an average
pore diameter of between 2 nm and 80 nm, and an OH concentration of less
than 1.5 OH groups/nm² of pore surface area.
Dwg.1d/2

ABEQ US 5723368 A UPAB: 19980421

Uncapped porous dielectric layer formed on a substrate and having an average pore size of 2-80 nm is modified by heating at 100-490 deg. C in controlled atmos., such that at least 70% of hydroxyl gps. initially present on the pore surfaces are removed, resulting in improved dielectric properties.

Also claimed is a semiconductor device comprising: (I) a layer of patterned conductors formed on a substrate; and (II) a porous dielectric layer, pref. SiO₂, formed between the patterned conductors, having a porosity of at least 20%, average pore dia. 2-80 nm and OH concn. below 1.5 pref. below 0.5 OH gps./nm² of pore surface area.

The controlled atmos. is an H₂-contg. O₂-free atmos, pref. 10 wt.% H (sic), and 90 wt.% N₂. (sic). The atmos. may alternatively, or in addn., contain an F cpd., pref. NH₄F, HF or F₂. Two different atmos. may be applied sequentially during heating. Heating temp. is 300-450 deg. C and the resulting linear shrinkage is 5% or less.

Hal gps., pref. F, are bonded to the pore surfaces of the porous dielectric in a concn. of above 0.8 groups/nm². A solid cap layer is added over the porous layer.

USE - Fabrication of dielectrics on semiconductor devices.

ADVANTAGE - The dielectric layer has improved dielectric constant, resistivity, breakdown voltage and/or loss factor.
Dwg.0/2b

=> FSE JP2531906B/PN

SEA JP2531906B/PN

L20 1 JP2531906B/PN
(JP2531906 B#/PN)

FSE

*** ITERATION 1 ***

SET SMARTSELECT ON
SET COMMAND COMPLETED

SET HIGHLIGHTING OFF
SET COMMAND COMPLETED

SEL L20 1- PN,APPS
L21 SEL L20 1- PN APPS : 6 TERMS

SEA L21
L22 1 L21

DEL L22- Y
FSORT L20
L22 1 FSO L20

0 Multi-record Families
1 Individual Record Answer 1
0 Non-patent Records

SET SMARTSELECT OFF
SET COMMAND COMPLETED

SET HIGHLIGHTING DEF
SET COMMAND COMPLETED

=> D BIB ABS 1-
YOU HAVE REQUESTED DATA FROM 1 ANSWERS - CONTINUE? Y/ (N) :y

L22 ANSWER 1 OF 1 WPIDS (C) 2002 THOMSON DERWENT

AN 1993-330491 [42] WPIDS
DNN N1993-255249 DNC C1993-145942
TI Foam polymer used as dielectric material - by producing copolymer from matrix polymer and thermal decomposable polymer and forming foam polymer by heating copolymer.
DC A85 L03 V04 X12
IN HEDRICK, J L; HOFER, D C; LABADIE, J W; PRIME, R B; RUSSELL, T P
PA (IBMC) IBM CORP; (IBMC) INT BUSINESS MACHINES CORP
CYC 2
PI JP 05205526 A 19930813 (199342) * 5p
JP 2531906 B2 19960904 (199640) 5p <--
US 5776990 A 19980707 (199834)
ADT JP 05205526 A JP 1992-207845 19920804; JP 2531906 B2 JP 1992-207845 19920804; US 5776990 A Cont of US 1991-759022 19910913, US 1993-31046 19930311
FDT JP 2531906 B2 Previous Publ. JP 05205526
PRAI US 1991-759022 19910913; US 1993-31046 19930311
AN 1993-330491 [42] WPIDS
AB JP 05205526 A UPAB: 19970502
The foamed polymer with a hole dia. of up to 1000A is obtd. by producing copolymer of a matrix polymer and a heat decomposable polymer decomposing at a temp. lower than the decomposition temp. of the matrix polymer and heating to copolymer to a temp. at or higher than the decomposition temp. of the heat decomposable polymer and lower than the decomposition temp. of the matrix polymer.
USE/ADVANTAGE - The foamed polymers have a lower dielectric constant and are useful as polymer insulators for electronic parts. The polymer is pref. foamed polyimide and poly(phenylquinoxaline) (PPQ).
In an example, a soln. of 16.812g bis(phenylglyoxalyl) benzene (PPQ material) and 10.266g polypropylene oxide with the terminals being capped with benzyl having a Mn of about 5000 (heat decomposable oligomer) (PO) in 100 ml of a mixed solvent of m-cresol and xylene (1:1) was drooped in a slurry of 10.7135g diaminobenzidine (also PPQ material) in 50 ml of the mixed solvent under stirring, the mixt. was stirred for 20 hrs. and poure in methanol and the obtd. precipitate was rinsed with methanol repeatedly to give a copolymer with a PO of 20 wt.% in a yield of 78%. A foamed polymer obtd. by heating a film of the copolymer for 9 hrs. at 275 deg. C had a density of 1.16 g/cm3, dielectric constants at 45 and 100 deg. C at 20 KHz of 2.38 and 2.36 and a mean hole dia. of 80A. (Reissue of the entr advised in week 9337 based on complete specification
Dwg.0/0

=> FSE JP05205526/PN

SEA JP05205526/PN
L23 1 JP05205526/PN

FSE
*** ITERATION 1 ***

SET SMARTSELECT ON
SET COMMAND COMPLETED

SET HIGHLIGHTING OFF
SET COMMAND COMPLETED

SEL L23 1- PN,APPS
L24 SEL L23 1- PN APPS : 6 TERMS

SEA L24
L25 1 L24

DEL L25- Y
FSORT L23
L25

1 FSO L23

0 Multi-record Families
1 Individual Record Answer 1
0 Non-patent Records

SET SMARTSELECT OFF
SET COMMAND COMPLETED

SET HIGHLIGHTING DEF
SET COMMAND COMPLETED

=> D BIB ABS 1-
YOU HAVE REQUESTED DATA FROM 1 ANSWERS - CONTINUE? Y/ (N) :y

L25 ANSWER 1 OF 1 WPIDS (C) 2002 THOMSON DERWENT
AN 1993-330491 [42] WPIDS
DNN N1993-255249 DNC C1993-145942
TI Foam polymer used as dielectric material - by producing copolymer from
matrix polymer and thermal decomposable polymer and forming foam polymer
by heating copolymer.
DC A85 L03 V04 X12
IN HEDRICK, J L; HOFER, D C; LABADIE, J W; PRIME, R B; RUSSELL, T P
PA (IBMC) IBM CORP; (IBMC) INT BUSINESS MACHINES CORP
CYC 2
PI JP 05205526 A 19930813 (199342) * 5p <--
JP 2531906 B2 19960904 (199640) 5p
US 5776990 A 19980707 (199834)
ADT JP 05205526 A JP 1992-207845 19920804; JP 2531906 B2 JP 1992-207845
19920804; US 5776990 A Cont of US 1991-759022 19910913, US 1993-31046
19930311
FDT JP 2531906 B2 Previous Publ. JP 05205526
PRAI US 1991-759022 19910913; US 1993-31046 19930311
AN 1993-330491 [42] WPIDS
AB JP 05205526 A UPAB: 19970502
The foamed polymer with a hole dia. of up to 1000A is obtd. by producing
copolymer of a matrix polymer and a heat decomposable polymer decomposing
at a temp. lower than the decomposition temp. of the matrix polymer and
heating to copolymer to a temp. at or higher than the decomposition temp.
of the heat decomposable polymer and lower than the decomposition temp. o
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had a density of 1.16 g/cm3, dielectric constants at 45 and 100 deg. C at
20 KHz of 2.38 and 2.36 and a mean hole dia. of 80A. (Reissue of the entr
advised in week 9337 based on complete specification
Dwg.0/0

=> LOG H
COST IN JAPANESE YEN

SINCE FILE TOTAL

FULL ESTIMATED COST

ENTRY
7552

SESSION
12354

SESSION WILL BE HELD FOR 60 MINUTES
STN INTERNATIONAL SESSION SUSPENDED AT 16:17:40 ON 17 JUN 2002
* JICST * :call cleared by request

NO CARRIER